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Review Of Sewer Line/Water Supply Protection

Effective Date: 1-23-03

DWP Policy #: BRP/DWM/WS/P03-1

Program Applicability: All Boston and regional BRP programs

Supersedes DWS Policy #: 88-02 Review of Sewer Line/Water Supply Protection

Approved by: Glenn Haas, Director, Division of Watershed Management

PURPOSE: This policy has been amended to reflect current terminology. Minor changes have been made to DWS Policy #88-02 without affecting the intent of that document. The original policy, dated 4-15-88, was adopted to implement the Department of Environmental Protection (then DEQE) policy statement dated February 2, 1988.

Policy

It is the Program's policy to implement fully the Review of Sewer Line/Water Supply Protection policy of the Department which is attached hereto and made a part hereof.

Department of Environmental Protection

This information is available in alternate format. Call April McCabe, ADA Coordinator at 1-617-556-1171. TDD Service - 1-800-298-2207.

DEP on the World Wide Web: <http://www.mass.gov/dep>

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Policy For Review of Sewer Line/Water Supply Protection

The intent of this policy is to protect existing and potential drinking water supplies from potentially negative effects of leaking sewer lines. This policy will apply to new sewer construction and replacement sewer construction statewide.

Gravel Packed and Tubular Wells

- Within the Zone I protective distance around gravel packed wells, all sewer lines and appurtenances are prohibited, unless they are necessary to eliminate existing and/or potential sources of pollution to the well.
- Within an Interim Wellhead Protection Area (IWPA) or unless otherwise documented by an appropriate study specifically defining the Zone II and approved by the Drinking Water Program, all sewer lines and appurtenances will be designed and constructed for maximum watertightness.
 - **Force Mains or Pressure Sewers:** shall be tested at 150% above maximum operating pressure or 150 p.s.i. whichever is greater. Testing shall conform to the requirements of the American Water Works Association (AWWA) standard C 600.
 - **Gravity Sewers:** shall be tested by approved methods which will achieve test results for infiltration or exfiltration of less than 100 gallons/inch diameter/mile/24 hours.
 - **Manholes:** shall be installed with watertight covers with locking or bolted and gasketed assemblies. Testing for infiltration/exfiltration shall conform to the same standard as the maximum allowed for pipes in the manhole as required for gravity sewers, indicated above.
 - Satisfactory test results for Force Mains, Manholes and Gravity Sewers shall be performed prior to the expiration of the contractor's one year guarantee period.
 - All pumping stations within this zone shall have standby power high water alarms telemetered to an appropriate location that is manned at all times. An emergency contingency plan must be developed by the pumping station owner and approved by the Department.
 - A minimum of Class B bedding as defined by WPCF-MOP9 must be used for all piping.
 - Service connections (laterals and house connections) shall be rigidly inspected by the appropriate municipal official. Certified inspection reports shall be submitted to the Department.

Bedrock Wells

The above requirements are the same for bedrock wells, with the Department reserving the right to require more stringent controls as necessary to protect public health. Such additional controls may be necessary due to the potential for quicker flow transport through bedrock fracture systems.

Surface Water Supplies

- Within the Zone A of all surface water supplies and tributaries, all sewer lines and appurtenances are prohibited except as required to cross tributaries or to eliminate existing or potential pollution to the water supply. In the latter case watertight construction methods shall be used as described above.
- Tributary stream crossings shall employ watertight construction methods of sewer lines and manholes. Watertight construction must be employed within the Zone A.
- Within 1,000 feet of surface water supplies and tributaries, all pumping stations shall have standby power and high water alarms telemetered to an appropriate location that is manned at all times. An emergency contingency plan must be developed by the owner of the wastewater treatment facility and submitted to the Department for approval.
- Beyond 1,000 feet, and within the watershed of surface water supplies, the Department may in specific circumstances, after review, require additional controls when deemed necessary for protection of public health.

Potential Public Water Supplies

The above requirements also apply to potential public water supplies. A proposed drinking water source that is proceeding through the Source Approval Process and has an approved Zone II/Zone A, and/or an approved withdrawal rate associated with it, will be considered a potential public water supply.

Baseline Data Requirements

Two (2) copies of an appropriately scaled map(s) shall be submitted to the Department which details the proposed sewers and/or appurtenances and also includes the following:

1. the location of all nearby existing or potential surface water supplies, tributaries thereto, and watershed boundaries;
2. the location of existing and potential public and municipal potable groundwater supply wells;

The Department reserves the right to impose more restrictive measures than those contained in this policy as deemed necessary to protect public health.

Definitions

- Appurtenances - all attachments to sewer lines necessary for the transport and operation and maintenance of sewer lines, including manholes, pumping stations, siphons, etc.
- Class B Bedding – as defined in WPCF Manual of Practice No. 9.
- Interim Wellhead Protection Area (IWPA) – For public water systems using wells or wellfields that lack a DEP approved Zone II, the Department will apply an interim wellhead protection area. This interim wellhead protection area shall be a one-half mile radius measured from the well or wellfield for sources whose approved pumping rate is 100,000 gpd or greater. For wells or wellfields that pump less than 100,000 gpd, the IWPA radius is proportional to the approved pumping rate which may be calculated according to the following equation: IWPA radius in feet

= $[32 \times \text{pumping rate in gallons per minute}] + 400$. [This equation is equivalent to the second graph in Appendix D of the 2001 Guidelines and Policies for Public Water Systems.] A default IWPA radius shall be applied to transient noncommunity (TNC) and nontransient noncommunity (NTNC) wells when there is no metered rate of withdrawal or no approved pumping rate. The default IWPA radius shall be 500 feet for TNC wells and 750 feet for NTNC wells.

- Potential public water supply – areas designated by communities for water supply purposes where land has been set aside and Department approved pump tests conducted and surface water supplies as defined below.
- Public Water Supply Systems – as defined in 310 CMR 22.02 (DEP Drinking Water Regulations).
- Surface Water Supply – Waters classified as Class A by the Department.
- Zone A – (a) the land area between the surface water source and the upper boundary of the bank; (b) the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a), or edge of the watershed, whichever is less; and (c) the land area within a 200 foot lateral distance from the upper boundary of the bank of a tributary or associated surface water body, or edge of watershed, whichever is less.
- Zone I – the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet. Tubular wellfields require a 250 foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = $[150 \times \log \text{ of pumping rate in gpd}] - 350$. [This equation is equivalent to the graph in Appendix C.] A default Zone I radius shall be applied to transient noncommunity (TNC) and nontransient noncommunity (NTNC) wells when radii cannot be calculated because there is no metered rate of withdrawal or no approved pumping rate. The default Zone I radius shall be 100 feet for TNC wells and 250 feet for NTNC wells.
- Zone II – that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at the approved yield, with no recharge from precipitation). It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till and bedrock. In some cases, streams and lakes may act as recharge boundaries. In all cases, Zone II shall extend upgradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary).